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Electric Rate Study – Executive Summary

Glendale Water and Power
Glendale, California

Prepared by:

NewGen Strategies & Solutions

EXECUTIVE SUMMARY

Introduction

In July 2017, NewGen Strategies and Solutions, LLC (NewGen) was retained by Glendale Water and Power (GWP) to perform an Electric Cost of Service and Rate Design Study (Study). As part of this Study, NewGen's Project Team (Project Team) developed a five-year financial forecast including revenue requirements, recommended debt issuances, and rate changes from fiscal year (FY) 2019 through FY 2023 (Study Period). The goal was to evaluate and identify the optimal combination of debt and rate (i.e. cash) funded portions of the capital program while maintaining financial stability over the five-year planning period.

Utility Description

GWP is a municipal utility that provides electric and water service to the community of Glendale, California. The GWP Commission is an advisory commission that provides recommendations to the City Council regarding changes in policy, improvements to the system, and the financing of improvements. The GWP Commission's five members are appointed and serve a four-year term with a three-term limit. GWP's last Electric Utility Rate Study was presented to City Council in 2013 and rate increases were approved for each year from 2014 through 2018.

The Electric Utility is projected to serve an average of 90,664 retail electric customers with average annual retail sales of 1,116,355 megawatt-hours (MWh) of electricity during the Test Year, or average over the Study Period.

The Electric Utility provides power to their customers through a combination of GWP-owned generation, purchase power contracts, and market purchases. Currently, GWP operates the Grayson Power Plant and plans to repower the plant, upgrading from steam boilers to combustion turbines. GWP also has various purchase power contracts for renewable energy. As of 2016, GWP power supply was 46% renewable resources. GWP has a goal of 50% renewable resources by 2030.

The Electric Utility transmission system consists of approximately 57 miles of 34 kilovolt (kV) and 69 kV line, of which, 27 miles is underground. The Electric Utility distribution system consists of approximately 496 miles of line, of which approximately 50% is underground.

Cost of Service and Rate Design Process Overview

The cost of service (COS) and rate design process includes five steps as follows:

1. *Determination of the Revenue Requirement* – This first step examines the utility's financial needs and determines the amount of revenue that must be generated from rates. For municipal utilities, the revenue requirement is determined on a "cash basis." A "cash basis" analysis examines the cash obligations of the utility such as operation and maintenance (O&M) expenses, debt service, cash funded capital projects, transfers, and City Transfers. Rates are set such that the utility can pay its bills on an annual going-forward basis.

   In preparing our analysis of the electric rates and the development of the revenue requirement, NewGen relied upon GWP's historical audited data, the 2017 Budget, the 2018 Budget, the

2018 year-to-date actual expenses, records of operation, customer billing data, and other detailed information and data compiled and provided by the GWP's management and staff.

2. *Functionalization and Sub-functionalization of Costs* – The revenue requirement is then assigned to the particular function or sub-function of the utility. Electric utilities like GWP typically have power supply, transmission, distribution, and customer services functions. Power Supply sub-functions may include utility owned generation or purchased power from contracts or the market. Distribution sub-functions may include distribution infrastructure by voltage, metering, billing, collection, etc. Customer sub-functions include billing and collections, customer service, meter reading, etc.

3. *Classification of Costs* – Once costs are functionalized, costs are then classified based on the underlying nature of the costs. Of particular importance is the determination of fixed versus variable costs. Fixed costs remain a financial obligation of the utility regardless of the amount of energy produced, whereas variable costs fluctuate based on system energy requirements. Further, fixed and variable costs are associated with utility requirements to meet customer demand, energy, and customer service needs.

4. *Allocation of Costs* – Once costs are classified, costs are then allocated to the various customer classes. Allocation factors align with cost classification. So, demand-related costs are allocated on measures of class demand such as class contribution to the system coincident peak (CP). Energy allocation factors are based on energy consumed by customers. Customer allocation factors are based on the number of customers.

These first four steps in the COS process are depicted in the figure below.

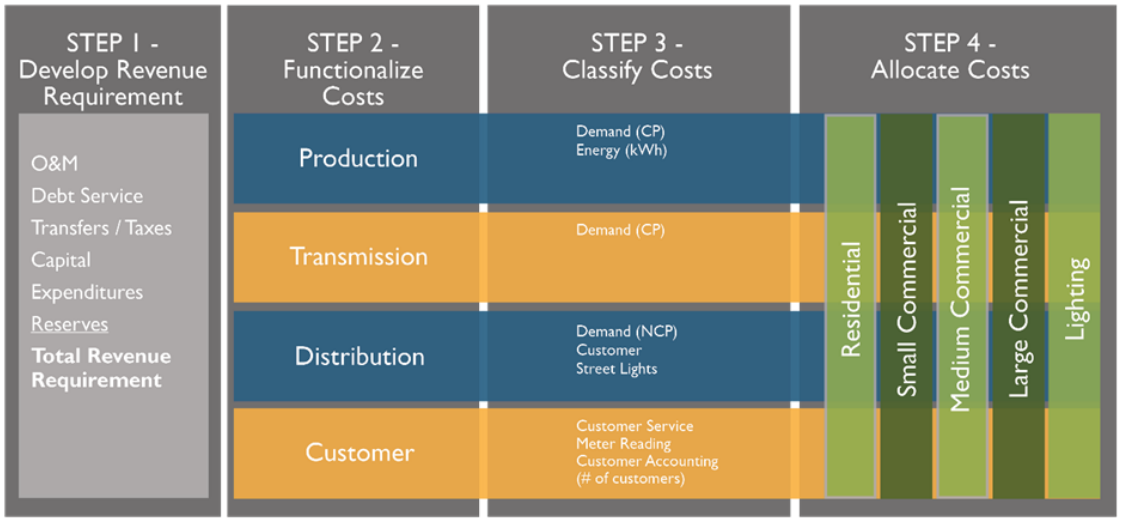

Figure ES-1. Typical Cost of Service Process

5. *Rate Design* – The fifth, and final, step is rate design, which translates COS results into rates for each customer class.

Revenue Requirement

NewGen utilized the 2018 year-to-date actual expenses account detail provided by GWP (2018 YTD Expenses) to develop the base year for the financial forecast model and subsequent projections. The

2018 YTD Expenses were projected to 2018 year-end totals for the base year, then projected for the Study Period 2019 through 2023. After review and discussion with GWP staff, the Project Team adjusted the 2018 YTD Expenses data to account for any unusual or one-time expenses. Any projected non-recurring expenses or revenues were identified and incorporated in the financial forecast, as appropriate.

Based on the financial forecast model, NewGen developed a Test Year Revenue Requirement. The Test Year Revenue Requirement reflects the Electric Utility's total cost of providing electric utility services to various rate classes that must be recovered through rate revenues. The Test Year Revenue Requirement was calculated by developing an average of the Electric Utility's costs or revenue requirements for the Study Period. Based on the Test Year, NewGen calculated the difference between the projected revenues and revenue requirement. Table ES-1 summarizes the forecasted operating expenses and revenue requirements for the Electric Utility over the Study Period. The Test Year Revenue Requirement of $214,767,143 is the five-year average of the annual revenue requirements and is shown in Table ES-1.

Table ES-1
Test Year Revenue Requirement (1)

Account	Year 1 FY 2019	Year 2 FY 2020	Year 3 FY 2021	Year 4 FY 2022	Year 5 FY 2023	Average Five-Year
O&M Expenses (2)	$159,108,930	$160,469,701	$162,193,402	$157,099,496	$160,261,319	$159,826,570
City Transfer	21,036,300	21,184,920	21,591,646	22,001,699	22,441,733	21,651,260
Debt Service (3)	12,205,350	12,175,350	47,219,151	47,206,701	47,206,201	33,202,550
Capital Paid from Current Earnings	35,977,550	39,789,985	18,786,137	18,824,340	22,022,848	27,080,172
Contribution to (from) Reserves (4)	0	0	0	0	0	0
Other Expenses/(Income) (5)	(26,328,952)	(26,589,280)	(26,926,390)	(27,179,877)	(27,942,546)	(26,993,409)
Revenue Requirement	**$201,999,178**	**$207,030,676**	**$222,863,946**	**$217,952,358**	**$223,989,554**	**$214,767,143**
Test Year Projected Revenues (6)						**$204,165,536**
Over (Under) Recovery of Costs						**($10,601,607)**
Over (Under) Recovery of Costs						**(5.2%)**

(1) Please note that the total amounts shown in the table may not properly add as shown due to rounding.
(2) O&M Expenses exclude non-cash related items such as Gas Depletion and Depreciation.
(3) Debt service reflects the annual total principal and interest payments associated with current and expected new debt financing.
(4) No contributions from cash reserves were used to reduce the revenue requirement.
(5) Other Expenses (Income) include interest income, capital contributions, miscellaneous revenues, and sales to other utilities.
(6) Test Year Projected Revenues vary each year as kWh sales vary.

NewGen has not included the use of, nor the contribution to, GWP's cash reserves to increase or decrease the Test Year Revenue Requirement shown in Table ES-1. If GWP desires, cash from reserves can be used to reduce the Test Year Revenue Requirement or address the under recovery of costs. The Test Year projected revenues are under collecting by approximately 5.2%.

If GWP does not institute rate increases, the estimated annual $10.6 million shortage will be taken from reserves, drawing down the cash reserve balance. The estimated reserve balance as of July 1, 2019 is $236 million or 545 days of cash on hand. Without any rate increases, the cash reserve balance of

$236 million will decrease by $53 million over the Study Period to $183 million. The days of cash on hand will decrease from 545 days to 418 days, a difference of 127 days cash on hand.

GWP is required to maintain a 1.1 debt service coverage ratio. Over the Study Period, GWP's average debt service coverage ratio is adequate and stays above a 1.5 coverage.

Cost of Service Results

The COS analysis translates the Electric Utility Test Year Revenue Requirement of $214,767,143 into a revenue requirement by customer class. The Test Year Revenue Requirement is functionalized or "unbundled" into four functions of the system (e.g. Power Supply, Transmission, Distribution, and Customer Service), then classified as customer-, demand-, or energy-related, and finally allocated to each of the customer classes as shown in Table ES-2. The result provides a COS revenue requirement for each customer class, which is then compared to the projected revenues for the Study Period to determine the class rate changes.

Table ES-2
Comparison of Current Rate Revenues with Cost of Service Results

Customer Class	Cost of Service (1), (2)	Test Year Projected Revenue (2), (3)	Difference ($)	Difference (%)
Residential (L-1)	$96,581,092	$75,711,004	($20,870,088)	(27.6%)
Small Business (L-2)	18,010,200	18,363,184	352,985	1.9%
Medium Business (LD-2)	40,014,492	46,865,167	6,850,675	14.6%
Large Business (PC-1)	56,043,020	60,299,056	4,256,036	7.1%
Lighting (SL1, SL2, SL3)	4,118,339	2,927,125	(1,191,214)	(40.7%)
Total	**$214,767,143**	**$204,165,536**	**($10,601,607)**	**(5.2%)**

(1) Total COS represents the five-year average revenue requirement for the Electric Utility.
(2) Rate revenue represents the projected five-year average rate revenues for the Electric Utility under current rates.
(3) Assumes energy cost adjustment charge (ECAC), regulatory adjustment charge (RAC), and the revenue decoupling charge (RDC) rates of $0.00 per kWh.

As shown in Table ES-2, overall COS analysis forecasts a 5.2% rate increase to meet the Electric Utility's revenue requirements. In addition, when evaluated on a customer basis, rate adjustments are required to ensure that each customer is appropriately charged based on their impact to the system.

Based on the COS results, GWP decided to support the revenue requirement needs with a combination of rate increases and use of reserves. GWP set the annual retail revenue increases of 0% for FY 2019, 0.5% for FY 2020, 1.0% for FY 2021, 1.0% for FY 2022, and 1.0% for FY 2023. Although these rate increases will not generate the full 5.2% revenue increase, the GWP recommended rate increases are reasonable and maintain the reserve fund balance at adequate levels.

With the GWP rate recommendations, the ending balance in FY 2023 increases from the estimated $183.3 million to $199.8 million, equivalent to 455 days cash on hand. The cash reserve balances resulting from the proposed rate increases are adequate based on industry practices and provide GWP flexibility and financial stability in supporting future operating and capital needs.

Rate Design

Rate Design includes proposed rates to collect the additional revenue goals. The GWP revenue increases were not applied equally to each customer class as the COS results indicate a 27.6% needed rate increase for Residential customers. NewGen recommends a gradual increase in Residential rates of 3% per year over the five-year period to better align rates closer to the COS results, while minimizing rate shock.

Based on the forecasted expenses to operate the Electric Utility from FY 2019 through FY 2023, NewGen recommends rate adjustments over five phases to gradually align rates with the COS. Table ES-3 shows the revenues for each phase, based on projected load. The load growth was provided by GWP and averages 0.5% per year. The total revenues reflect rate increases and load growth. If the load growth is removed, the increases in revenue are in line with GWP's rate change proposal. The results of the gradual rate change and revenue generated in each phase is provided in Table ES-3.

Table ES-3
Electric Utility Rate Revenue Increase in Five Phases

Class	Revenue at Current Rates (2018) (1)	Phase 1 (2019) Revenue (2)	Phase 2 (2020) Revenue (2)	Phase 3 (2021) Revenue (2)	Phase 4 (2022) Revenue (2)	Phase 5 (2023) Revenue (2)
Residential (L-1)	$77,588,941	$74,915,324	$77,555,626	$80,468,391	$83,687,629	$86,653,349
Small Business (L-2)	18,808,557	18,170,198	18,235,617	18,333,746	18,497,294	18,579,068
Medium Business (LD-2)	48,071,258	46,372,640	45,901,076	45,946,913	46,065,715	46,046,530
Large Business (PC-1)	62,233,458	59,665,346	59,147,308	59,190,532	59,565,797	59,543,568
Lighting (SL1, SL2, SL3)	2,996,914	2,926,638	2,926,638	2,926,638	2,926,638	2,926,638
Total	$209,699,128	$202,050,146	$203,766,264	$206,866,219	$210,743,073	$213,749,153
Change in Revenues		-3.6%	0.8%	1.5%	1.9%	1.4%
Load Growth (3)		0.4%	0.4%	0.5%	0.9%	0.4%
Effective Revenue Increase (4)		-4.0%	0.5%	1.0%	1.0%	1.0%

(1) Assumes RAC rate of $0.0076 per kWh.
(2) Assumes ECAC, RAC, and RDC rates of $0.00 per kWh.
(3) Load Growth provided by GWP. Percent increase reflects increase in retail sales kWh.
(4) The effective revenue increase reflects the increase in revenues if there were no load growth.

The L-1 class receives rate increases of approximately 3% per year for years 2020-2023. The L-2 and SL classes' rates do not change. The LD-2 and PC-1 classes receive a rate decrease of approximately 1.3% in year 2020 and rate decreases in years 2021 – 2023 of approximately 0.5% per year. The rate increases outlined in Tables ES-3 are largely due to capital needs of the Electric Utility. The capital needs outlined in GWP's Electric Utility Capital Improvement Plan (CIP) totals approximately $479 million for the Study Period. Ultimately, an increase in electric rates is necessary to ensure GWP has sufficient financial resources to cover the cost of providing service and fund the needed capital improvements.